

88 00808

8/14/89

SAFETY ELEMENT

INSTITUTE OF GOVERNMENTAL
STUDIES LIBRARY

JUL 30 1987

UNIVERSITY OF CALIFORNIA

Thousand Oaks General Plan



Thousand Oaks Planning Department



Digitized by the Internet Archive
in 2024

<https://archive.org/details/C124893703>

SAFETY ELEMENT

THOUSAND OAKS GENERAL PLAN

THOUSAND OAKS PLANNING DEPARTMENT

SEPTEMBER, 1974

Table of Contents

Introduction.....	Page 1
Problems and Issues.....	Page 6
Fire Hazard.....	Page 6
Flooding.....	Page 22
Geologic Hazard.....	Page 32
Public Response to Safety Hazards.....	Page 34
Conclusion.....	Page 38

INTRODUCTION

SECTION I: INTRODUCTION

INTRODUCTION

In 1971, the California State Legislature passed legislation requiring that a "Safety Element" be added to the General Plans of all cities and counties in the State. As directed by Section 65302.1 of the State Government Code, cities are required to adopt this Element "for the protection of the community from fires and geologic hazards including features necessary for such protection as evacuation routes, peak load water supply requirements, minimum road widths, clearances around structures, and geologic hazard mapping in areas of known geologic hazard."

STATEMENT OF GOALS

The purpose and objective of this Element is to introduce safety considerations in the planning process in order to reduce loss of life, injuries, damage to property, and economic and social dislocation resulting from fire, flood, and dangerous geologic occurrences.

RISK DEFINITION AND RISK MITIGATION

In order to evaluate the adequacy of existing codes, regulators or practices used to reduce or avoid safety hazards, it is necessary to relate and define relative risk levels. The several types of risks discussed for the purposes of the Seismic Safety and the Safety Elements include acceptable, unacceptable, avoidable, and tolerated risk. These relative risks are defined as:

- Acceptable Risk: The level of risk below which no specific action by local government is deemed to be necessary.
- Unacceptable Risk: Level of risk above which specific action by government is deemed to be necessary to protect life and property and no permitting or regulatory control exists to require abatement of the hazard.
- Avoidable Risk: Risk not necessary to take because individual or public goals can be achieved at the same or less total "cost" by other means without taking the risk, and should be mitigated in the planning or construction stages of development.
- Tolerated Risk: Between the extremes of the risk scale, unacceptable at one end and acceptable at the other, there are all degrees of relative risk. These are less clear-cut situations such as a suspected land slide which may or or could pose a threat to existing features or improvements. A similar situation is the possible hazard of slide-prone formation which underlies a site. Although these may be equally unacceptable risks, such factors

as the probability of occurrence at a site, and the importance or value of a structure or land use, result in gradation in the degree of risk unacceptability. Also, further toward the acceptable risk end of the scale are other presently unrecognized hazards, either because of the lack of information or capability to detect the hazard. Although there appears to be no consensus for the definition of acceptable risk other than the one above (for the purposes of categorizing the various safety hazards in land-use planning), those considered most unacceptable can be identified and mitigated if possible, or restricted from future use. Those remaining risks, therefore, are placed in the category of tolerated risk, and are considered almost non-distinguishable from acceptable risks for purposes of this Element.

SAFETY STANDARDS AND CRITERIA

Safety standards and criteria are rules established for use as a basis for comparison in measuring unacceptable levels of risk.

The responsibility for establishing criteria and standards rests primarily with local jurisdictions. The State has established some

standards but has left the City and other local agencies the task of enforcing them.

Standards

Although there is no single unified set of safety standards, the City of Thousand Oaks has evolved a series of standards, specifications, and regulations that apply to safety. These are incorporated into various codes and ordinances, the primary ones applicable to the scope of this element being the Building Code, Fire Code, Grading Ordinance, Zoning Ordinance, Subdivision Ordinance, and State Health and Safety Code.

The Building and Fire Codes contain building standards. Land development standards are in the Grading, Zoning, and Subdivision Ordinances as well as the Fire Code.

Building standards were designed to establish common safeguards for erection of buildings, the structural condition of existing structures, and their level of general maintenance.

Land development regulations are the principal devices by which the City of Thousand Oaks can guide urban development into appropriate areas and influence its form and arrangement.

CRITERIA FOR DECISION MAKING RELATED TO RISK

As discussed in the Seismic Safety Element, the following factors should be considered in evaluating risk.

1. Severity of potential losses: Fire, flood or geologic impacts including loss of life, injury, property damage, loss of function

and hidden cost should be considered.

2. Risk reduction capabilities: Consideration should be given to current technological capabilities, available fiscal and manpower resources, and established priorities.
3. Probability of loss: The probability of future fire, flood or adverse geologic occurrences should be evaluated in light of their possible effect on structures or human activities.
4. Adequacy of basic data: This is an important factor in estimating the probability of imperceived hazards.

PROBLEMS AND ISSUES

SECTION II PROBLEMS AND ISSUES

Fire Hazards

The major fire hazards within the Thousand Oaks Planning Area can be divided into two distinct categories: Urban or Structural Fire Hazards and Natural Brush Fire Hazards.

URBAN FIRE HAZARDS

In 1973, the Ventura County Fire Department responded to 733 structural fires. This was more than 50% of all total responses to actual fires. A large percentage of the total figure were fires involving single dwellings or buildings, primarily single family residences.

The safety risks to the community related to urban fire hazards becomes critical when discussing high occupancy structures, which due to the concentrations of high numbers of people inside these structures, intensifies the disaster potential. Examples of high occupancy structures include high-rise buildings, hospitals and medical facilities, indoor public assembly facilities, industrial plants, and large commercial shopping centers. The first three examples will be discussed for illustrative purposes.

The Thousand Oaks Area presently has no high-rise structures, but as urbanization of the Valley continues, the pressures and demands for medium and high-rise structures will intensify. The use and structural characteristics combined with difficulties related to emergency response and disaster control procedures, make medium and high-rise development particularly susceptible to fire hazards.

Dependency on internal support systems, including ventilation, water availability and pressure, and elevator systems, increases the sensitivity of multi-story structures to fire hazard. Such systems may fail during a fire when they are most critically needed.

Emergency response and disaster control procedures become increasingly difficult with taller buildings. Access of personnel and equipment to upper story fires is a major problem. Evacuation of building occupants is another. Aerial ladder evacuation may be required if smoke or mechanical failures block normal exit routes. Inadequate or inoperable internal communication systems hinder efforts to locate and evacuate trapped occupants.

Thousand Oaks has one major hospital (within the City limits) to serve the community, Los Robles Hospital. In addition, there are several smaller nursing and general care facilities within the City which provide beds and medical services for chronically ill or convalescent patients. The activities and populations associated with these facilities are particularly sensitive to fire hazards.

General hospitals, offering a wide array of medical services, rely on highly sophisticated and sensitive equipment for a number of life maintenance functions. Fire damage to such equipment would directly effect the safety and well being of present and future patient populations.

Patient populations are commonly characterized by physical or mental disabilities. Such disabilities inhibit the patient's capacity to react during a crisis. In instances where there is a large population of dependent individuals, the number of supervisory or custodial personnel

is usually inadequate to provide sufficient aid and guidance in times of emergency. Even if adequate aid were provided, many ailments would be seriously aggravated by stress situations.

Numerous structures can be categorized as indoor public assembly facilities. In this element, these refer to all indoor facilities where large groups of people are gathered in generally unfamiliar surroundings. Such facilities include a host of entertainment and recreational establishments, as well as public and semi-public institutions which include churches, temples, and schools.

The one characteristic shared commonly by all public assembly facilities is the concentration of large numbers of people. This condition provides the potential for mass panic response to a crisis situation. A mass response of this nature can ultimately cause more casualties than the originating event. Factors including unfamiliar surroundings, lack of knowledge concerning exit routes, and loss of orientation heighten the fire disaster potential. Additional problems stem from intense concentrations of people--should a fire occur in a crowded facility, causing extensive damage, and injury, provision of the required medical aid is difficult. This problem has been generally recognized by many emergency response agencies and mock disaster games have been carried out in an attempt to familiarize and to train response personnel.

BRUSH FIRES

Causes and Origins of Brush Fires

Brush fire problems can be traced to three sources: vegetation,

climate, and people. The major types of vegetation found in the Thousand Oaks area (Chapparrel, sage, grassland, etc.) provide a major source of fire fuel. These vegetative associations contain many species of plants considered pyrophytic, plants which need the heat of the fire to germinate their seeds for reproduction. When these vegetation systems are burned over by a brush fire, the existing ground cover is destroyed, but in many cases the plant association survives and is actually improved by this means of natural selection.

The climate of the region is one of the critical factors influencing the occurrence and severity of our brush fires. The hot dry summer leaves the area hillsides highly susceptible to a major fire. During the early fall, periods of "Santa Ana" winds occur, caused by a local weather phenomenon of a low pressure system developing off the coast while a high pressure system settles over the inland desert areas. The result is the hot dry winds which pour over the mountain areas into the Conejo Valley aggravating the potential fire threat in the high brush areas, already dried out by the summer heat.

Probably the most dangerous of the three sources is people. Continued urbanization of the flat lands within the Valleys has put increasing pressure on the development of hazardous brush covered hillsides. With the advent of man and his structures into the critical brush areas, fire prevention techniques control the natural burning processes. The longer a brush area goes without burning, the older dry, dead materials and the new plant growth constitute potentially a more volatile fuel source. These fuel sources are usually then ignited by man, either directly through careless action, or indirectly through

accidents such as sparks from engine exhaust, falling power lines, etc. Natural causes are now relatively minor causes of brush fires. Man is the primary agent in this natural cycle of fire.

Effects of Brush Fires

The primary effect of a brush fire is the loss of the vegetative ground cover. This brings immediate damage to valuable recreational and open space areas. As it was pointed out previously, many of the plant and animal associations in the natural communities have adapted themselves to a fire-climax cycle, and will naturally regenerate themselves through the fire cycle and will naturally generate themselves through fire. Hence, they themselves may not be permanently impacted.

Indirectly, the real effects of the loss of vegetation are much greater than initially realized. When a slope is burned over by a fire of intense heat, a chemical reaction in the soil takes place which makes it less porous. As the rains of winter come, rain water runs off and causes mudslides and mudflows. Properties not affected directly by the fire may be damaged or destroyed by the effects of increased runoff due to brush fire.

The loss of man-made improvements in the brush covered areas constitute most of the dollar loss from fires. Losses along this line include homes, barns and sheds, utility lines and facilities. The loss of valuable watershed area combined with the actual suppression costs also are major determinants of the total dollar costs of any fire.

The potential of loss of life is the most dangerous aspect of brush fires. Occasionally, trapped residents are injured or killed when there is no warning of the impending disaster, or when they simply refuse to evacuate their homes in the face of the fire. Unfortunately, the largest loss of life occurs to the professional fire fighters who are killed while fighting brush fires, which have a highly unpredictable nature, or in other accidents during the support operations necessary to suppress the fire.

Historic Brush Fires

Table 1, below, indicates the major brush fires which have occurred in or immediately adjacent to the Conejo Valley area since 1952. The Parker Ranch fire of 1967 burned from Chatsworth to Thousand Oaks and consumed over 25,000 acres in Ventura County alone. This fire destroyed forty-eight structures with a value of \$323,790. More recently, in 1973, the Potrero Fire burned through the entire Point Mugu Park south of the Planning Area, destroying more than 12,000 acres and forcing the park to restrict activities ever since. In addition to these major fires, minor brush fires which endanger lives and structure occur frequently between late Spring and late Fall.

Table 1
Fires Over 1,000 Acres (1952-1973) Near Thousand Oaks
Ventura County Fire Protection District

<u>Name</u>	<u>Date Started</u>	<u>Number of Structures</u>	<u>Structure Loss</u>	<u>Acreage Affected in Ventura County</u>
Ventu Park	11/7/55	8	\$ 55,285	13,840
Little Sycamore	12/27/56	5	\$ 5,425	1,617
Lake Sherwood	12/28/56	20	\$135,560	7,747
Conejo Grade	6/18/57	-	-	1,000
Parker Ranch	10/16/67	48	\$323,790	25,000
Clampitt/Wright/ Guiberson	9/2/70	200+	N.A.	N.A.
Potrero	9/26/73	3	\$ 1,650	12,214

Fire Protection and Services

Fire Prevention and Services are provided the City of Thousand Oaks by the Ventura County Fire Prevention District. The Fire Prevention District is responsible for enforcing Title 19 of the California Administrative Code regulating "Fire and Panic Safety". The District also enforces fire prevention standards and fire flow requirements as dictated by the National Fire Protection Association, the Uniform Building Code, and the Uniform Fire Code. The District has a number of mutual aid agreements with Los Angeles County, the Cities of Ventura, Oxnard, Fillmore, and Santa Paula, the Naval facilities at Point Mugu and Port Hueneme, the fire fighting crews at Camarillo State Hospital and Rocketdyne, the California State Division of Forestry, the National Forest Service (which provides borate bombers), and the Ventura County Sheriff's Department (which has helicopters equipped with water tanks for fire fighting).

There are 26 fire stations operated throughout Ventura County by the District. All available equipment and manpower can be called into the Conejo Valley 24 hours a day. Appendix 1 is the newly revised Emergency Readiness Plan which is used by the Fire Department as an aid in the general preparation of department personnel, apparatus and equipment for emergency activities when conditions influencing department operations are judged to be, or anticipated to be, more hazardous than normal.

Fire Stations

The Ventura County Fire Department currently has six existing stations serving the Conejo Valley with one other station proposed for the near future on Duesenberg Drive. The entire Conejo Valley is well served by fire stations, with virtually all developed areas within two miles of a station (See Figure 1). Currently, parts of Westlake Village are more conveniently served by Los Angeles County units, under a co-operative agreement with the Ventura County Fire Department. When the Duesenberg Drive station is eventually built (at which time the existing Erbes Road station will be phased out), the Westlake portion of the City will be within a two-mile radius of a Ventura County Fire Department facility.

Fire Zones

The City is divided into fire zones which regulate the construction of buildings within the different zones per Section 8-1.18 of the Municipal Code. There are four fire zones defined in the Code:

- | | |
|------------------|--|
| Fire Zone No. 1: | This zone is reserved for future delineation as to location and area. |
| Fire Zone No. 2: | This zone encompasses all commercially zoned areas within the City. |
| Fire Zone No. 3: | All areas not defined in Zones 1, 2, or 4. In Thousand Oaks, most residential areas are in Fire Zone 3. |
| Fire Zone No. 4: | This zone shall include all territory or portions of the City not included in Fire Zones Nos. 1, 2, or 3. The limits of Fire Zone No. 4 are set by the Building Official following a determination by the Fire Chief that a fire hazard is present in accordance with the Uniform Fire Code. This zone shall include any |

land which is covered with forest, brush, grass, grain, or other similar conditions.
(See Figure 2).

Fire Zone No. 4 is the most restrictive of the zones, and is enforced through Section 8-1.20 of the Municipal Code which dictates certain building restrictions in the zone, including the treatment of the exterior walls and unenclosed underfloor areas with materials approved for one-hour fire-resistive construction. Also required is fire retardant roofing or roofing constructed in accordance with the Uniform Building Code Standard No. 32-14 for Special Purpose Roofs.

Water Supply

The Ventura County Fire Department obtains the water necessary for fire suppression from the City owned water distribution system, and the distribution systems of two private companies, California American Water Company and Westlake Water Company. The determination of the fire flow requirements are given in the "Water Design and Construction Standards" manual of the City's Utilities Department.

There are two methods used to determine the fire flow for a particular area, with the largest requirement of the two to be used in designing the water system. The two methods used are land use minimum requirements and minimum requirements as set by the population of an area. (See Tables 2 and 3 below). These tables show average required flow and duration in hours for both methods, as used by the National Board of Fire Underwriters.

Criteria for applying fire flows for system design demand that the system pressures at the point of delivery should be at least 20 pounds per square inch under flow conditions of maximum daily demand plus fire flow.

Table 2
Recommended Fire Flows

<u>Land Use</u>	<u>Minimum Fire Flow, gpm</u>	<u>Duration in Hours</u>
Residential		
Single Family, 1 story	1,500	6
Single Family, 2 story	1,750	6
High Rise Apartments	2,500	10
Elementary School & Church	2,000	8
Junior High School	2,000	8
Senior High School	3,000	10
Commercial and Industrial (low value)	3,000	10
Commerical and Industrial	5,000	10

Table 3
Recommended Fire Flows

<u>Fire Flow Based on Population</u>	<u>Minimum Fire Flow, gpm</u>	<u>Duration in Hours</u>
Population		
1,000	1,000	4
1,500	1,250	5
2,000	1,500	6
3,000	1,750	7
4,000	2,000	8
5,000	2,250	9
6,000	2,500	10
10,000	3,000	10
13,000	3,500	10
17,000	4,000	10
22,000	4,500	10

Note: Fire flows required for commercial and industrial development are determined by rating of fire risk of individual structures. The flow recommendations shown above are generalizations covering the range of flows normally required.

The fire flow standards outlined above are currently being met throughout the Conejo Valley.

Brush Clearance Policy

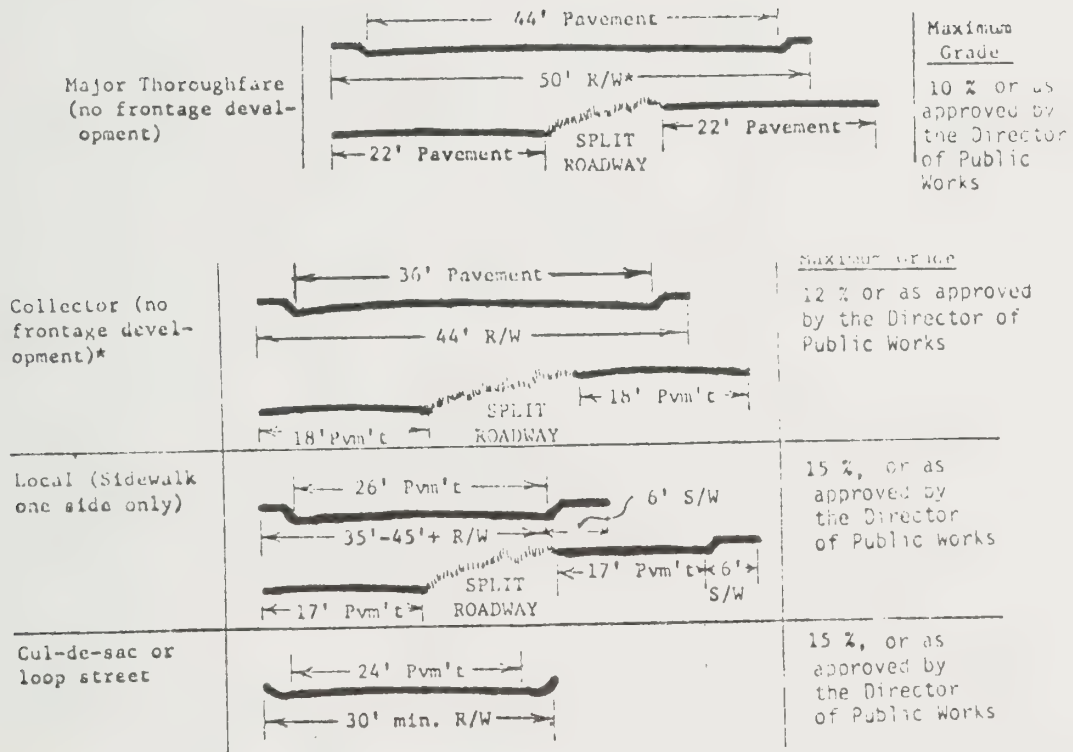
In accordance with the Uniform Building Code, a strict program of brush clearance around structures is enforced by the Fire Department. A minimum clearance of 30 feet is required around all structures; 60 feet in high grass, low brush areas; and up to 100 feet from the nearest structure or 60 feet from the property line in any high brush area. If the property owner does not clear his land in accordance with these standards, the County Fire Department crews will do it and the owner billed for the expense. These clearances do not apply to ornamental trees and shrubs or ground cover less than 18 inches high provided they do not provide a means of rapidly transmitting fire from the native growth to any structure.

Minimum Road Widths

Section 9-4.3106 of the Thousand Oaks Municipal Code provides for minimum road widths in the HPD (Hillside Planned Development) zone which requires less width than any other residential zone.

In the HPD zone, each new street shall have a right-of-way, roadway, and median widths conforming to the standards shown in Figure 3 below.

Figure 3
Minimum Road Widths



Since 36 feet of roadway is the minimum the Fire Department normally would require (and is required in all other residential zones), the HPD ordinance provides for intervening turn-outs and strict off-street parking requirements to insure unhindered movement of emergency vehicles in hillside developments with narrower roads.

Evacuation Routes

In cases of major brush fire, nearby residents are warned of the danger, and evacuation is recommended if the threat is eminent. The responsibility for warning and evacuation is handled by the Ventura County Sheriff's Department. Evacuation can only be recommended, not ordered. Formal evacuation routes are not predetermined by the Sheriff's Department. Due to the unpredictability of a fire, the law enforcement agencies want to be able to remain flexible. To insure this flexibility of emergency access, the Fire Department reviews subdivision designs to minimize the length of cul-de-sacs (standard length not more than 800 feet.)

Inspection Programs

The Ventura County Fire Department has a number of on going inspection programs. These include annual inspections of all public assembly halls, annual inspections of large industrial structures, and quarterly inspections of certain high risk structures such as hospitals, lumber yards, etc. In addition, the Fire Department actively participates in the plan-check review of all major public and private development proposals.

FLOODING

The major safety aspect of flooding is the threat it brings to life and property. Damage from flooding can include entire structures and their contents washed away; roads and bridges washed out; people and animals drowned. Floods may create health hazards due to the discharge of raw sewage from damaged sewer lines, septic tank leach fields, and sewage treatment plants. Critical public services may be disrupted. The costs of evacuation, relief, cleanup operations, and the repair of damaged facilities can run into millions of dollars. The burden of paying off the cost of federal loans for reconstruction of private property and of damage claims under federally-subsidized flood insurance falls upon the general taxpayer in the aftermath of a disasterous flood.

Floods have occured numerous times in the history of Ventura County. In 1928, the largest flood in California history caused by dam failure occured when the St. Francis Dam collapsed and inundated the Santa Clara Valley.

More recently, data has been recorded on seven floods in the County in the last twelve years. The largest and most damaging floods in the County occured during the winter of 1969. Disasterous floods occured in both January and February of that year. Major damage was inflicted upon all cities on the Santa Clara River. Transportation facilities were knocked out. Major sewer trunk lines and three sewer treatment plants were severely damaged. In all, thirteen people were killed and there was an estimated 60 million dollars in property damage.

The floods of 1969 emphasized the urgent need for more flood control throughout the County, particularly in regard to overflow and flood plain areas adjacent to major channels. The extent and degree of potential flooding

is virtually unknown to the public in many locations due to the relative infrequency of occurrence. As urbanization of the Conejo Valley continues, more and more land area is covered over by impervious surfaces, increasing direct runoff waters into the major drainage systems of the Valley. As urbanization becomes more intense, greater pressure for development within flood hazard areas will occur.

Potentials for Flooding in the Thousand Oaks Planning Area

The potentials for major flooding in Thousand Oaks generally are very low. This is directly related to the City's topographic location at the high-land headwaters of two major drainage systems, the Triunfo-Las Virgenes and Conejo-Calleguas systems, far upstream from the major flood plain areas most severely affected by flood hazard. The Triunfo-Las Virgenes system drains the Westlake Area through Triunfo Creek, which joins Las Virgenes Creek near Las Virgenes Road and flows into the Pacific Ocean at the Malibu Lagoon. The Conejo-Calleguas drainage system drains the remainder of the Conejo Valley through the Arroyo Conejo through Hill Canyon into the Santa Rosa Valley, joining Calleguas Creek near Camarillo and flowing to the Ocean at Mugu Lagoon.

The Valley is, however, potentially subject to two sources of flooding: natural flooding due to storms and flooding due to dam failure. Natural flooding may occur along any of the tributary streams to the two major drainage systems. Dam inundation flooding may occur downstream of either of the two dams whose failure would impact the Planning Area: Lake Sherwood Dam or Westlake Reservoir. Westlake Reservoir is a new earthen dam constructed to provide water storage for domestic purposes for the Westlake area. Lake Sherwood Dam is one of the oldest concrete dams in the State, being constructed in 1902. While both dams are outside the Thousand Oaks Planning Area, failure of either of these dams would greatly affect areas within

that boundary.

Natural Flood Hazards

For planning purposes, the selected flood is that natural flood against which flood protection should be provided to insure that streamflow, runoff, or flood waters do not cause damage to existing or planned buildings, structures and lands. The Ventura County Flood Control District currently uses a 50-year flood (a flood with a two percent probability of occurring in any one year) as the selected flood for the drainage systems in the Conejo Valley. Unfortunately, the flood plain limits of the tributary systems in the Conejo Valley have not yet been mapped by the District for their 50-year flood plain limits. The general locations of the drainage tributaries is shown on Figure 4.

The City has recently received copies of the official Flood Hazard Boundary Maps for the Conejo Valley prepared by the Federal Insurance Administration. The special flood hazard areas shown on Figure 4 represent areas of the community that are likely to be inundated by a 100-year flood, a flood having a one-percent probability of occurring in any given year. In the near future, a Flood Insurance Rate Study will be conducted by the Federal Insurance Administration to determine the actual height of a 100-year flood in these areas. The selected 100-year flood used by the Federal Insurance Administration is also used by the Corp of Engineers for their study purposes in the area.

The area most closely relating to the definition of a flood plain in the Planning Area is Hill Canyon which receives all of the major tributary drainage of the Arroyo Conejo system. This area has not been officially designated a flood plain by the County Flood Control District; however, it has been classified as such for planning purposes in the Conservation Element to the General Plan. (See Figure 4)

Subdivision Map Act, and are required by the Colby-Alquist Flood Plain Management Act as a condition for state assistance on federally authorized flood control project.

On the federal level, the regulations of the National Flood Insurance Program (administered by the Department of Housing and Urban Development) require that communities adopt land use restrictions normally for the 100-year flood plain, in order to qualify for federally subsidized flood insurance. The types of restrictions communities must adopt are listed in some detail in the regulations; included is a requirement that residential structures be elevated above the level of the 100-year flood (See Figure 6). Participation in the flood insurance program was recently made virtually mandatory by an amendment making flood insurance (in "flood-prone" areas) a prerequisite for receiving mortgages or construction loans from federally regulated lending institutions.

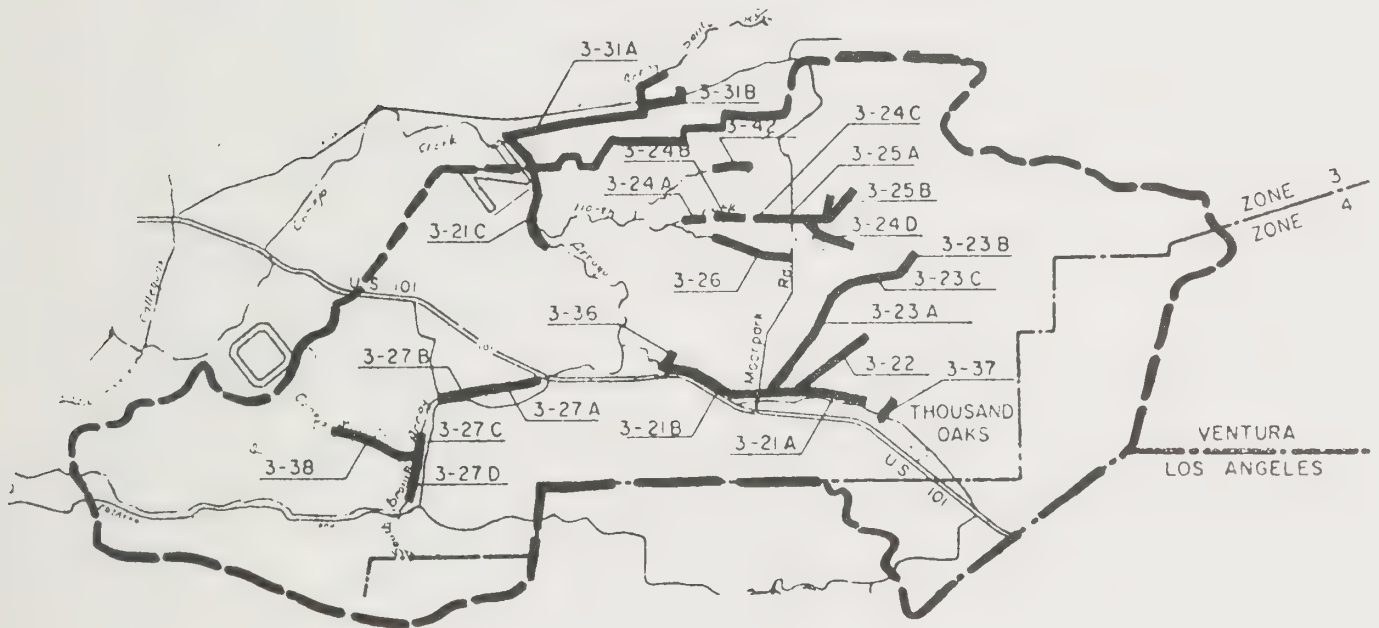
Potential Inundation Due to Dam Failure

Following the 1971 San Fernando earthquake, the State Office of Emergency Services, was charged with the responsibility of delineating all areas potentially subject to inundation due to dam failure for all dams under State jurisdiction. At this time, the mapping does not indicate relative hazard potential or involve specific analysis of the stability of each dam. The areas preliminarily identified as being subject to inundation within Thousand Oaks are shown in Figure 4.

The State Division of Dam Safety of the Department of Water Resources is responsible for identifying those dams most susceptible to failure, mainly according to their age, type of construction and present physical condition. Those dams which are not believed to be vulnerable are then certified for

continued use by the State. Some are certified with a limitation on the maximum water level, if there is some doubt as to the dam's stability. According to State records, both the dams at Lake Sherwood and Westlake Reservoir are certified to operate at full capacity.

FIGURE 5



<u>Project No.</u>	<u>Project Name</u>	<u>Project No.</u>	<u>Project Name</u>
3-21 A,B,C	Arroyo Conejo	3-27 A,B,C,D	South Branch Arroyo Conejo
3-22	Thousand Oaks North Drain	3-31 A,B	Arroyo Santa Rosa
3-23 A,B,C	Lang Creek	3-36	Park Drain
3-24 A,B,C,D	North Fork Arroyo Conejo	3-37	Erbes Road Drain
3-25 A,B	Castano Channel	3-38	Conejo Mountain Creek
3-26 A	Waverly Channel	3-42	Olson Channel

FIGURE 6

Regulations of the National Flood Insurance Program

The regulations require different measures depending on the amount of information available. The identified flood plain areas in the Thousand Oaks Planning Area would be included in category (c):

- (c) When the Administrator has identified the flood plain area having special flood hazards, and has provided water surface elevations for the 100-year flood, but has not provided data sufficient to identify the floodway or coastal high hazard areas, the minimum land use and control measures adopted by the community for the flood plain must --
- (1) Meet the requirements of paragraph (b) of this section;
 - (2) Require new construction or substantial improvements of residential structures within the area of special flood hazards to have the lowest floor (including basement) elevated to or above the level of the 100-year flood;
 - (3) Require new construction or substantial improvements of non-residential structures within the area of special flood hazards to have the lowest floor (including basement) elevated to or above the level of the 100-year flood or, together with attendant utility and sanitary facilities, to be floodproofed up to the level of the 100-year flood; and
 - (4) In riverine situations, provide that until a floodway has been designated, no use, including land fill, may be permitted within the flood plain area having special flood hazards unless the applicant for the land use has demonstrated that the proposed use, when combined with all other existing and anticipated uses,

FIGURE 6 - Continued

will not increase the water surface elevation of the 100-year flood more than 1 foot at any point.

The requirements of paragraph (b) which are referred to in section (1) are as follows:

- (1) Take into account flood plain management programs, if any, already in effect in neighboring areas;
- (2) Apply at a minimum to all areas identified by the Administrator as flood plain areas having special flood hazards;
- (3) Provide that within the flood plain area having special flood hazards, the laws, ordinances, or codes;
- (4) Require building permits for all proposed construction or other improvements in the flood plain area having special flood hazards;
- (5) Review building permit applications for major repairs within the flood plain area having special flood hazards to determine that the proposed repair (i) uses construction materials and utility equipment that are resistant to flood damage, and (ii) uses construction methods and practices that will minimize flood damage;
- (6) Review building permit applications for new construction or substantial improvements within the flood plain area having special flood hazards to assure that the proposed construction (including prefabricated and mobile homes) (i) is protected against flood damage, (ii) is designed, or modified, and anchored to prevent flotation, collapse or lateral movement of the structure, (iii) uses construction materials and utility equipment that are resistant to flood damage, and (iv) uses construction methods and practices that will minimize flood damage;

FIGURE 6 - Continued

- (7) Review subdivision proposals and other proposed new developments to assure that (i) all such proposals are consistent with the need to minimize flood damage, (ii) all public utilities and facilities, such as sewer, gas, electrical, and water systems are located, elevated, and constructed to minimize or eliminate flood damage, and (iii) adequate drainage is provided so as to reduce exposure to flood hazards; and
- (8) Require new or replacement water supply systems and/or sanitary sewage systems to be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters, and require on-site waste disposal systems to be located so as to avoid impairment of them or contamination from them during flooding.

GEOLOGIC HAZARDS

Geologic Hazards (not seismically related) are discussed in detail in the Seismic Safety Element of the General Plan. The following geotechnical hazards were studied and mapped by the geological consulting firm retained by the City to prepare the Seismic Safety Element:

1. Slope Instability
 - a. Landslides
 - b. Mudslides, erosion and other shallow slope failures.
 - c. Slide-prone formations.
2. Soil-Related Hazards
 - a. Expansive soil
 - b. Settlement
 - c. Subsidence
 - d. Hydrocompaction
3. Other Problems
 - a. Seepage, shallow groundwater.
 - b. Percolation characteristics.

Mapping Techniques

Where mappable, the hazards are displayed on the Geotechnical Hazards Map of the Seismic Safety Element (Plate I) as required by the State guidelines. The hazards map, utilizing a modified form of conventional geologic mapping, is an interpretive map designed to facilitate land use planning by rating the various geologic hazards, which, in turn, relate to land suitability or capability. The delineated map areas are numbered generally in their order of

increasing relative risk, because of terrain conditions (slope), type and severity of geologic hazard (either existing or potential), inherent soil sensitivity (to seismic shock) or bedrock formation weakness (prone to sliding). Zones 1 and 2 have multiple risk ratings due to a greater range of conditions within that zone; refer to the Geotechnical Land Use and Hazard Classification Table (Plate III). Special hazards or zones are identified by a pattern or conventional geologic symbol.

PUBLIC RESPONSE TO SAFETY HAZARDS

SECTION III: PUBLIC RESPONSE TO SAFETY HAZARDS

EMERGENCY CONTINGENCY PLANS

City of Thousand Oaks

The Emergency and Disaster Plan and organization for the City of Thousand Oaks is provided by Chapter 4 of Title 4 (Public Safety) of the Municipal Code. This section of the Municipal Code, in addition to the Emergency Operations Plan of the City, provides for the preparation and implementation of plans for the protection of persons and property within the City in the event of an emergency or a disaster. It also provides for the coordination of the emergency or disaster functions of the City with all other public agencies and affected private persons, corporations, and organization. This Chapter along with the adopted and revised Emergency Operations Plan is appended hereto for general information purposes. (See Appendix 2)

Chapter 6 of Title 4 of the Municipal Code which adopts the Uniform Fire Code for Fire Prevention and Control within the City is attached as Appendix 1.

City Council is currently accepting bids for the provision of emergency radio equipment to be installed in the Thousand Oaks Civic Center. This is the result of a proposed Emergency Mobilization Plan of the Conejo Valley Disaster Communications Group to facilitate the mobilization of emergency communication resources in the shortest time possible to provide the Conejo Valley with supplemental emergency communications. The proposed plan is presented in Appendix 2.

County of Ventura

The Board of Supervisors of Ventura County has adopted an Emergency Operations Plan in the Basic Plan format drafted by the State Office of Emergency Services. For informational purposes, the Services Annexes portion of the Basic Plan is appended to this Element to cover the following regional public service concerns in case of a disaster affecting the Planning Area (See Appendix 3):

1. Direction and Control
2. Fire
3. Law Enforcement
4. Engineering and Utilities
5. Health
6. Medical
7. Welfare
8. Transportation
9. Communication
10. Personnel and Manpower

As pointed out in the Fire Hazards section of this Element, the Emergency Readiness Plan of the Ventura County Fire Department is presented in Appendix 1.

RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

In adopting the General Plan in 1970, the City Council of the City of Thousand Oaks adopted the following as one of the primary goals of the Plan:

"To provide a high quality environment that at all times is healthful and pleasing to the senses of man and to understand the relationship between the maintenance of ecological systems and the general welfare of the people of the Conejo Valley."

This goal laid the foundation for the adoption of later Elements to the Plan which more clearly identified the necessity for considering public safety in the planning processes.

The Conservation Element adopted in 1972 recognized that various physiographic features were suitable for various kinds of intensities of urban land use. A hierarchy was developed to describe in a generalized fashion the degree of limitation the natural environment presented to urban development. Many of these limitations are due to public safety concerns. Policies with respect to development in areas of moderate and steep slopes were developed due to the erosion control, geologic and fire hazard potentials entailed in urbanization of this type of terrain. It pointed out that flood plains are intrinsically suited to nearly all kinds of development - most of the time.

As a component of the total drainage system, flood plains are intolerant to development or topographic modification which involves human habitation or permanent structures, or which may diminish the capacity of the plain to carry recurring floods.

The Open Space Element of the General Plan enumerates those policies

which should be considered in the development of an Open Space System within the Conejo Valley. A primary function of the Open Space System is public safety. Those specific areas called out in the Element to be placed in an Open Space designation were flood plains, drainage channels, unstable soil areas, and fire hazard zones. It was pointed out that careful correlation should be made of all the General Plan Elements to assure that all ramifications of their Public Safety functions are adequately investigated.

CONCLUSION

SECTION IV: CONCLUSION

The City of Thousand Oaks has been progressive in recognizing public safety concerns in the planning process. However, increasing development pressures in potentially hazardous areas will magnify problems in future years. In continuing to provide for the safety of residents, the City must utilize available implementation techniques and work closely with all other public and private agencies concerned with the health and welfare of the inhabitants of the Conejo Valley. To implement this goal, it shall be the official policy of the City Council of the City of Thousand Oaks to:

1. Work with the Ventura County Fire Department to adequately consider fire prevention and suppression needs in planning for future development, and in reducing fire hazards to existing structures.
2. Evaluate the compatibility of the Land Use Element of the General Plan with known fire, flood, and geologic risk zones as identified by this Element and the Seismic Safety and Conservation Elements. Evaluate future development proposals in risk areas for adequate safeguards.
3. Continue updating disaster response programs and expand communication and co-ordination with other general governmental agencies and disaster response organizations. Promote public awareness of disaster response plans.
4. Co-ordinate with the Ventura County Flood Control District in devising and adopting future land use programs and regulations for flood hazard areas.

5. Authorize special studies of fire, flood, or geologic hazard areas in the Conejo Valley as needed.

These policies provide direction for achieving the goals of this Element. They will be carried out in cooperation with all other concerned individuals and agencies in order to mitigate or eliminate public safety hazards in the Conejo Valley, and to insure a safe and healthful environment for its residents.



APPENDICES

The appendices to the Safety Element are bound under separate cover. Copies are available for review at the Planning Department Offices, 401 West Hillcrest Drive, Thousand Oaks.

